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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,216	11/16/2005	Anne-Valerie Ruzette	33808F197	9182

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EXAMINER	
MAKSYMONKO, JOHN M	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
08/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/502,216	RUZETTE ET AL.	
	Examiner	Art Unit	
	John M. Maksymonko	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) *1-11,13,19,22 and 23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12, 14-18, 20-21, and 24-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20040721, 20040820*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Invention II and Species A in the reply filed on 29 May 2008 is acknowledged. The traversal is on the ground(s) that the special technical feature that is common to Inventions I and II is radical polymerization in the presence of nitroxides. This is not found persuasive because despite the addition of a method limitation into the product claims (i.e. product by process- wherein patentability is determined by the nature of the product), they remain just that, a product and a method. Therefore, the examiner maintains the previously stated special technical feature and the restriction is therefore proper.

The requirement is still deemed proper and is therefore made FINAL.

Regarding applicant's grouping of claims for the election of species, applicant's assertion that claims 21, 29, and 30 are generic is deemed incorrect because they depend from claim 13, which is the base claim of the unelected species. Claims 21, 29, and 30 are withdrawn along with claims 1-10, 13 and canceled claims 11, 19, and 22-23.

Claim Objections

2. Claim 16 is objected to because of the following informalities: In line 2 of the claim, applicant recites a range of between 2 and 25. The examiner assumes it was intended to read between 2 and 2.5 (as per the specification) and was examined as such. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 12, 14-15, 17-18, 22, 24-28, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guerret et al. (WO 00/71501, using US 6,657,043 as a translation) in view of Fischer et al. (US 6,239,226) and Coran et al. (US 4,473,683).

Regarding claims 12, 14-15, 17, 22, 24-28, and 32-34, Guerret discloses a method of preparing an ABA block copolymer with a polydispersity of 1.7 (Column 24, Line 51) , the B block being flexible and having a Tg of less than 0C with a polydispersity of less than 2 (Butyl Acrylate: Column 24) and the A block being stiff with a Tg of greater than 0C (Styrene: Column 24) , comprising preparing a first block having an average mass of greater than 20,000 g/mol with an alkoxyamine of the recited formulas (Column 10, A1 and Column 14, A2), adding nitroxide (Column 8, Lines 21-26), carrying out the polymerization at 123 C, diluting the first block in styrene monomer, carrying out the polymerization at 123 C, the conversion being above 10%, the end result being an impact modifying acrylic copolymer (Column 24, Lines 25-53).

The reference also discloses separating residual monomer after the first polymerization by evaporation under vacuum at 123C but does not explicitly disclose this step after the second polymerization. The difference between the method of making the block copolymer disclosed by Guerret and that claimed by applicant is that the vacuum separation should be after the second polymerization. However, since applicant does not demonstrate the criticality of vacuum separation after the second polymerization, the selection of any order of performing a process step is prima facie obvious in the absence of unexpected results. In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) and Selection of any order of mixing ingredients is prima facie obvious. In re Gibson 39 F. 2d 975. 5 USPQ 230 (CCPA). See MPEP § 2144.04

The reference does not explicitly disclose performing the reaction at between 0.5 and 10 bar but also does not disclose the reaction taking place at anything other than atmospheric pressure, 1 bar, which falls within the claimed range.

Also, the reference is silent to the mixing of the copolymer with the brittle matrix in the amounts recited as well as the polydispersities of the copolymer and the middle block of the copolymer having an average weight of greater than 60,000 g/mol.

Fischer teaches an ABA triblock copolymer of styrene and butyl acrylate useful for addition to a polystyrene or other brittle matrix along with other additives in order to impart high impact strengths, especially at low temperatures, high weathering and aging stability, and ease of colorability (Column 4, Lines 36-41).

Coran teaches a rubber modified styrene matrix being between 20-50% by weight polystyrene matrix having greater toughness and impact resistance than the unmodified styrene matrix (Column 1, Lines 26-27).

As Guerret, Fischer, and Coran relate to copolymers capable of modifying a polystyrene matrix, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the copolymer of Guerret in the brittle matrix of Fischer in the amounts taught by Coran for the purpose of preparing a resin with high impact strengths, especially at low temperatures, high weathering and aging stability, and ease of colorability (Fischer: Column 4, Lines 36-41 and Coran: Column 1, Lines 26-27).

Regarding claim 18, modified Guerret discloses all of the limitations of claim 34 as set forth above. Additionally, the reference reveals a theoretical molecular weight of

the middle block of greater than 60,000 (81,200: Column 24, Line 34). While the actual yield at only 72% conversion was slightly below 60,000, it would have been obvious to one having ordinary skill in the art at the time the invention was made to continue to higher conversion rates to reach the theoretical molecular weight in the claimed range.

7. Claims 16 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guerret et al. (WO 00/71501, using US 6,657,043 as a translation) in view of Fischer et al. (US 6,239,226) as applied to claim 12 above, and further in view of Pourallmady et al. (EP 0947527).

Regarding claims 16 and 31, modified Guerret discloses all of the limitations of claim 12 as set forth above. While the reference does teach that nitroxide mediated free radical polymerization gives a practitioner high degrees of control of molecular weight and polydispersity, the reference does not, however, explicitly disclose the polydispersity of the product being from 2 to 2.5.

Pourallmady teaches a styrene/acrylate triblock copolymer having a polydispersity of 2.4 (Example 5) which is useful as a toughening additive for plastic molding compounds (Page 3, Line 30).

As both modified Guerret and Pourallmady relate to styrene/acrylate triblock copolymers, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method of modified Guerret to create a polymer with the characteristics of Pourallmady for the purpose of preparing an ideal toughening additive for plastic molding compounds (Pourallmady: Page 3, Line 30), via controlling

the polydispersity to be 2.4 which implicitly effects the physical properties of the final product.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guerret et al. (WO 00/71501, using US 6,657,043 as a translation) in view of Fischer et al. (US 6,239,226) as applied to claim 12 above, and further in view of Billovits et al. (WO 98/52978).

Regarding claim 20, modified Guerret discloses all of the limitations of claim 12 as set forth above. Additionally the reference discloses the polymerizations taking place at 123 C. The reference does not explicitly disclose performing the reaction at between 0.5 and 10 bar but also does not disclose the reaction taking place at anything other than atmospheric pressure, 1 bar, which falls within the claimed range.

The reference also discloses separating residual monomer after the first polymerization by evaporation under vacuum at 123C but does not explicitly disclose this step after the second polymerization. The difference between the method of making the block copolymer disclosed by Guerret and that claimed by applicant is that the vacuum separation should be after the second polymerization. However, since applicant does not demonstrate the criticality of vacuum separation after the second polymerization, the selection of any order of performing a process step is prima facie obvious in the absence of unexpected results. In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) and Selection of any order of mixing ingredients is prima facie obvious. In re Gibson 39 F. 2d 975. 5 USPQ 230 (CCPA). See MPEP § 2144.04

Modified Guerret does not explicitly disclose the vacuum devolatilization taking place at exactly 200 C.

Billovits teaches a method of removing residual styrene monomer from a reaction system at above 150 C (Page 3, Lines 26-27) in order reduce the time necessary to achieve the desired level of volatiles removal (Page 3, Line 25).

As both modified Guerret and Billovits relate to the vacuum devolatilization of free styrene monomer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to perform the devolatilization at 200 C for the purpose of reducing the time necessary to achieve the desired level of volatiles removal (Billovits: Page 3, Line 25). It would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

International Search Report

9. Regarding the 5 "X" references listed on the International Search Report of the related PCT application, these references are only directed to the claims of the product and not the method of making claims elected in the instant application.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Maksymonko whose telephone number is (571)270-3239. The examiner can normally be reached on Monday-Thursday, 7:00AM-4:30PM, and alternating Fridays 7:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JM
22 July 2008

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796